ELLEN F. ROSENBLUM
Attorney General
FRANK HAMMOND #852239
SCOTT KAPLAN #913350
Senior Assistant Attorneys General
Department of Justice
100 SW Market Street
Portland, OR 97201
Telephone: (971) 673-1880
Fax: (971) 673-5000
Email: Frank.Hammond@doj.state.or.us
Email: scott.kaplan@doj.state.or.us

Attorneys for State of Oregon

IN THE UNITED STATES DISTRICT COURT

FOR THE DISTRICT OF OREGON

PORTLAND DIVISION

NORTHWEST ENVIRONMENTAL ADVOCATES, a non-profit corporation,

Plaintiff,

v.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, a United States Government Agency,

Defendant,

v.

STATE OF OREGON, OREGON WATER QUALITY STANDARDS GROUP, and FRESH WATER TRUST

Intervenor-Defendants

Case No. 3:12-cv-01751-AC

DECLARATION OF EUGENE P. FOSTER REGARDING REMEDIES

Department of Justice
1162 Court Street NE
Salem, OR 97301-4096
(503) 947-4700 / Fax: (503) 947-4792

I, Eugene P. Foster, declare:

I. Introduction.

1. Oregon temperature total maximum daily loads (TMDLs) that are based on the natural conditions criteria (NCC), are scientifically complex analyses, the implementation of which provide water quality benefit to sensitive beneficial uses. As explained below, these temperature TMDLs should remain in place until replacement temperature TMDLs can be developed. As also explained below, the development of replacement temperature TMDLs will take a number of years because of the need to collect more recent and therefore, relevant, data, the complexity of the analysis needed for temperature TMDL development, and the required public involvement process.

II. Responsibilities and knowledge.

2. I am the manager of the Watershed Management Section in the Environmental Solutions Division of the Oregon Department of Environmental Quality (DEQ). I have served in the position for ten years. In that position, I am responsible for direct management of water quality analysts, water quality modelers, nonpoint source specialists, TMDLs and nonpoint source policy specialists. I have statewide responsibility for the TMDL and Nonpoint Source Programs. I have a Bachelor of Science in Fisheries and Wildlife from University Missouri-Columbia and a Ph.D. in Toxicology from Oregon State University. I teach Ecological Toxicology, Water Quality Policy and Management, and advise graduate students at Portland State University. I have over 30 years of experience working in the environmental field and have given seminars on toxicology and water quality management nationally and internationally.

3. Part of my duties at DEQ involve participating and supervising the development of TMDLs. My duties at DEQ also involve the organization, review, and analysis of information collected for the purpose of developing TMDLs. My duties at DEQ also include maintaining a familiarity with state and federal laws governing DEQ's development and implementation of its water quality standards and the development of TMDLs. The statements below reflect

Department of Justice
1162 Court Street NE
Salem, OR 97301-4096
(503) 947-4700 / Fax: (503) 947-4792

information and knowledge that I have acquired as a result of the execution of my duties at DEQ during the normal course of business.

III. The subject temperature TMDLs.

4. The subject temperature TMDLs (Table 1) were developed for waterbodies where DEQ determined the natural thermal potential (NTP) of the waterbody exceeded the biologically based numeric criteria for temperature. The NTP is the thermal profile of a waterbody without anthropogenic (human caused) effects and based on DEQ's analysis about the natural characteristics of the waterbody that affects the temperature. The elements of these temperature TMDLs usually included: identification of the waterbodies addressed by the TMDL; the pollutant, in this instance, heat; the water quality standard and beneficial uses; the loading capacity,[1]; the excess load, which is the difference between the actual pollutant load and the loading capacity; the sources or source categories of the pollutant; a cumulative effects analysis; wasteload allocations; load allocations;[2] reserve capacity; margin of safety; and seasonal variation.

As explained below, these TMDLs allocated the Human Use Allowance (HUA) to limit anthropogenic (caused by human activity) sources of heat to no more than a 0.3C increase in the temperature of the waterbody above the biologically based numeric criteria or the natural thermal potential. The TMDLs were developed and applied to the entire waterbody, subbasin, or basin as specified in the TMDL, taking into account the complex nature in which inputs of heat relate to waterbody conditions throughout the geographic extent of the TMDL. This approach was used to address sources of heat that are located upstream but contribute to warming in the impaired segment. The temperature TMDL development used Geographic Information Systems

[1] The loading capacity is based on meeting the water quality standard, which for the NCC TMDLs is the either the numeric criteria or the Natural Thermal Potential plus the Human Use Allowance, and it is the Human Use Allowance that is allocated to anthropogenic sources.

[2] In the case of temperature allocations are form the Human Use Allowance and the point sources and nonpoint sources are only given a portion of the 0.3C for anthropogenic effects on temperature.

Department of Justice
1162 Court Street NE
Salem, OR 97301-4096
(503) 947-4700 / Fax: (503) 947-4792

(GIS), water quality and watershed analysis, and water quality modeling. Some of the types of data used included water chemistry, flow, weather, channel morphology, riparian vegetation (height, width, and density), effective shade, slope, elevation, and aspect. The total amount of time needed to develop the temperature TMDLs in Table 1 was approximately ten years because of data collection and analysis needed to develop these TMDLs using the data and analysis explained above.[3]

Table 1. Temperature TMDLs that are the subject of this litigation

Location	**Approval Date**
John Day Basin	December 17, 2010
Grande Ronde Basin, Lower Grande Ronde Subbasin	September 24, 2010
Malheur Basin	December 17, 2010
Middle Columbia/Hood Basin, Miles Creek Subbasin	February 5, 2009
Rogue Basin	December 29, 2008
Umpqua Basin	April 12, 2007
Willamette Basin, Molalla-Pudding Subbasin	December 31, 2008
Willamette Basin	September 29, 2006
Umatilla Basin, Willow Creek Subbasin	February 19, 2007
Rogue Basin, Middle Rogue Subbasin & Bear Creek Watershed	October 2, 2007

5. The subject temperature TMDLs are important for reducing anthropogenic sources of heat. These temperature TMDLs and water quality management plans (WQMPs) issued by DEQ along with the required TMDL Implementation Plans (TMDL IPs) developed by

[3] There are four additional TMDLs that were approved before 2006 that the court determined to be beyond the statute of limitations. These are the Snake River-Hells Canyon TMDL, Applegate River Subbasin TMDL, Walla Walla River TMDL, and the Sandy River Basin TMDL. For this reason this declaration is focused on the 10 TMDLs, but my statements and opinions concerning TMDL development and impact apply to all 14 basins, with the exception that the Snake River-Hells Canyon TMDL and Applegate River Subbasin TMDL were approved under the 1996 temperature standard, which allowed a 0.25°F increase from anthropogenic sources. All the other TMDLs relied on the 2004 standard , which contains an allowance of 0.3°C increase.

Department of Justice
1162 Court Street NE
Salem, OR 97301-4096
(503) 947-4700 / Fax: (503) 947-4792

Designated Management Agencies (DMAs)[4] and approved by DEQ provide a water quality based regulatory framework supported by science and regulations to address temperature impairments. The temperature TMDLs, WQMPs, and TMDL IPs work together to reduce anthropogenic effects on stream temperature by: (a) the TMDL assigning to anthropogenic sources allocations of heat that would reduce stream temperature from the current condition; (b) the WQMP providing a framework for management strategies with general timelines and schedules to be used by DMAs for TMDL implementation planning; and (c) TMDL IPs developed by DMAs that provide specifics of the management actions that will be implemented by the DMA with a schedule for implementation and designed to meet the anthropogenic allocations.

6. The temperature TMDLs allocate heat to meet the Human Use Allowance (HUA) of 0.3C (OAR340-041-0028(12)(b)(B)), which has been determined to be a biologically "insignificant increase in temperature…[and is] not considered a reduction in water quality." (OAR340-041-0004(3)(c)). The concept of an insignificant, or de minimis, increase comes from the 2003 EPA Region 10 Guidance for Pacific Northwest State and Tribal Temperature Water Quality Standards), which states that "A state or tribe might choose to include a de minimis increase allowance as a way of accounting for monitoring measurement error and tolerating negligible human impacts." Oregon, Washington State and Idaho have all followed this EPA guidance and adopted a 0.3C de minimis human use allowance in their rules (WAC 173-201A-200(1)(c)(i) in Washington State, and IDAPA 58.01.02.401.01.c in Idaho).

7. Allocating heat to meet the OR HUA results in limits for NPDES permitted sources (point sources) and non-NPDES permitted sources (nonpoint sources) to ensure that inputs from these sources are reduced from current levels and will cause less than 0.3C increase in temperature at any point within the area covered by the TMDL. Point sources are discernible,

[4] A DMA is a federal, state or local government agency that DEQ identifies as having authority over a sector or source of contributing pollutants.

Department of Justice
1162 Court Street NE
Salem, OR 97301-4096
(503) 947-4700 / Fax: (503) 947-4792

confined, and discrete conveyances from which pollutants are or may be discharged and typically described in TMDLs as those sources requiring an NPDES permit. Nonpoint sources are from a diffuse or unconfined source of pollution where wastes can either enter into waters of the state or be conveyed by the movement of water into waters of the state and typically described in TMDLs as those sources not required to obtain a NPDES permit. The TMDLs allocated thermal loads to meet the 0.3C HUA, of which a portion was allocated to point sources and nonpoint sources, as:

- Wasteload allocations ("WLAs") (OAR340-042-0040(4)(g)) to NPDES permitted point sources (Table 2) expressed as a daily thermal load that are then translated into effluent limits when permits are issued;
- Load allocations (OAR340-042-0040(4)(h)) for nonpoint sources (Table 3) with thermal loads expressed as effective shade based on the shade that should be provided by a natural vegetation condition;
- Load allocations for flow for critical time periods were allocated in one TMDL that would be implemented through DEQ's in-stream water rights authority (OAR chapter 340 division 056) or Oregon's Integrated Water Resources Strategy;
- Load allocations for channel morphology in three TMDLs to identify those areas where channel restoration is important for achieving the HUA.

The temperature TMDLs assigned HUA based WLAs to domestic and industrial NPDES permitted sources. There were a total of 62 domestic (municipal sewage treatment plants) that received WLAs and 104 industrial and General Permit WLAs that were allocated (Table 2).

Department of Justice
1162 Court Street NE
Salem, OR 97301-4096
(503) 947-4700 / Fax: (503) 947-4792

Table 2. The number of Industrial, General Permit, and Domestic sources that were allocated WLAs in the temperature TMDLs.

TMDL	Industrial and General WLAs	Domestic WLAs
John Day Basin	0	3
Grande Ronde Basin, Lower Grande Ronde Subbasin	0	3
Malheur Basin	0	0
Middle-Columbia/Hood	0	2
Basin, Miles Creek Subbasin		
Willamette Basin, Molalla- Pudding Subbasin	6	3
Rogue Basin	1	10
Rogue Basin, Middle Rogue Subbasin, Bear Creek Watershed	0	1
Umpqua Basin	1	10
Umatilla Basin, Willow Creek Subbasin	1	1
Willamette Basin	95	29
TOTAL	104	62

8. DEQ has authority to use surrogates for a pollutant for TMDL allocations (OAR 340- 042-0040(5)(b)). Nonpoint sources were assigned load allocations based on surrogates that represent watershed characteristics that can affect thermal load to the stream and cause an increase in stream temperature (Table 3). These surrogate measures are watershed characteristics that can be affected by anthropogenic activities, such as: effective shade when disturbance or removal of riparian vegetation occurs; channel morphology when activities simplify or widen the channel; stream flow when water withdrawals increase temperature; and reservoir operations that change the thermal profile of the downstream waterbody. Restoration

Department of Justice
1162 Court Street NE
Salem, OR 97301-4096
(503) 947-4700 / Fax: (503) 947-4792

of these watershed characteristics will result in reduced stream warming. Effective shade allocations implement the HUA and were allocated in all of the TMDLs. Channel morphology was allocated in three TMDLs, stream flow in one, and reservoir operations in seven.

Table 3. The types of load allocations assigned to nonpoint sources in the temperature TMDLs.

TMDL	Effective Shade	Channel Morphology	Stream Flow	Reservoir Operations
John Day Basin	Yes	Yes	Yes	Yes
Grande Ronde Basin, Lower Grande Ronde Subbasin	Yes	No	No	No
Malheur Basin	Yes	No	No	Yes
Middle-Columbia/Hood Basin, Miles Creek Subbasin	Yes	No	No	No
Willamette Basin, Molalla-Pudding Subbasin	Yes	No	No	No
Rogue Basin	Yes	No	No	Yes
Rogue Basin, Middle Rogue Subbasin, Bear CreekWatershed	Yes	No	No	Yes
Umpqua Basin	Yes	Yes	No	Yes
Umatilla Basin, Willow Creek Subbasin	Yes	Yes	No	Yes
Willamette Basin	Yes	No	No	Yes

9. The WQMPs were issued by DEQ at the time the temperature TMDLs were issued. The WQMPs lay out the information and requirements for TMDL implementation, including requiring the DMAs to develop and submit TMDL IPs to DEQ for review and approval. In general, these WQMPs include the following:

Department of Justice
1162 Court Street NE
Salem, OR 97301-4096
(503) 947-4700 / Fax: (503) 947-4792

- Proposed management strategies designed to meet the waste load allocations and load allocations in the TMDL. This will include a categorization of sources and a description of the management strategies proposed for each source category.
- A general timeline for implementing management strategies.
- Explanation of how implementing the management strategies will result in attainment of water quality standards.
- General timeline or discussion for attainment of water quality standards.
- Identification of persons, including DMAs, responsible for implementing the TMDL and development of TMDL implementation plans.
- Identification of existing DMA TMDL implementation plans if available at the time the TMDL is issued.
- Schedule for preparation and submission of TMDL implementation plans by responsible persons, including DMAs, and processes that trigger revisions to these implementation plans.
- Description of reasonable assurance that management strategies and TMDL implementation plans will be carried out through regulatory or voluntary actions.
- Plan to monitor and evaluate progress toward achieving TMDL allocations and water quality standards.
- Plan for public involvement in implementing management strategies.

10. There were 243 DMAs or other Responsible Persons ("RPs") named in the temperature TMDL WQMPs and many of these DMAs and RPs were required to develop and submit TMDL IPs. DEQ has approved or taken action on 188 TMDL IPs or other plans that satisfy the requirements of a TMDL IP. Some DMAs were not required to submit TMDL IPs when DEQ determined that their activities would have an insignificant effect on heat load. However, they were named DMAs so that if at a later date their activities are determined to have an effect on stream temperature, a TMDL IP could be required by DEQ. DEQ has reopened

Department of Justice
1162 Court Street NE
Salem, OR 97301-4096
(503) 947-4700 / Fax: (503) 947-4792

temperature TMDL WQMPs after issuance to add DMAs and require TMDL IPs for sources not identified as DMAs initially but later thought to be significant sources of heat (e.g., the Molalla-Pudding TMDL). Other DMAs, such as Oregon Department of Agriculture (ODA) and Oregon Department of Forestry (ODF) are not required to submit TMDL IPs but have specific statutory and regulatory requirements for TMDL implementation through the Agriculture Water Quality Management Act (see OAR 340-042-0080(3)) and the Forest Practices Act (see OAR 340-042-0080(2)). These agencies are responsible for TMDL implementation for those land uses that they have authority, ODA for agricultural activity on agricultural lands and ODF for timber harvest on state and nonfederal forest lands.

11. The TMDL IPs are detailed plans that the WQMP requires a DMA to develop. The TMDL IPs: (1) identify the management strategies the DMA or other responsible person will use to achieve load allocations and reduce pollutant loading; (2) provide a timeline for implementing management strategies and a schedule for completing measurable milestones; and (3) provide for performance monitoring with a plan for periodic review and revision of the implementation plan. The TMDL IPs are developed by DMAs to address their activities in relation to the TMDL allocations. The DMAs, and NPDES permittees, are not required to reduce heating of the waters of the State that occurs due to natural conditions; anthropogenic sources are responsible only for controlling the thermal effects of their own discharge or activity in accordance with the TMDL allocations (OAR 340-041-0028(12)(a)).

IV. Development of replacement temperature TMDLs for the affected basins

12. Each of the basin level TMDLs and WQMPs that will be developed to replace the temperature TMDLs and WQMPs that are the subject of this litigation (Table 1) will take approximately three years to develop, with two exceptions. The Rogue Basin, Middle Rogue Subbasin & Bear Creek Watershed (Oct. 2, 2007) will be included as part of the Rogue Basin (Dec. 29, 2008) TMDL. In addition, the Molalla-Pudding Subbasin of the Willamette Basin (Dec. 31, 2008) will be developed as part of the Willamette Basin (Sept. 29, 2006) TMDL.

Department of Justice
1162 Court Street NE
Salem, OR 97301-4096
(503) 947-4700 / Fax: (503) 947-4792

13. A minimum of three years is necessary to develop each basin level TMDL in these large and complex geographic areas because of the large amounts of diverse data and intensive analysis needed to develop scientifically defensible TMDLs and WQMPs. For these TMDLs to be updated, existing data should be assembled and new data and information collected where needed. The data upon which the current temperature TMDLs and WQMPs are based ranges from 10 to 20 years old and likely no longer reflect current watershed conditions for understanding current excess load. In addition, some NPDES permitted facilities that received allocations in the temperature TMDLs have closed since the time of the temperature TMDL issuance, which will affect the cumulative effects analysis and possibly the waste load allocations for the replacement temperature TMDLs. Also, existing vegetation and vegetation planted since development of the temperature TMDLs would have grown and effective shade levels would have changed, affecting the analysis. Therefore, updated information is needed to develop replacement temperature TMDLs for each basin which could include:

- NPDES permitted facility effluent flow and temperature
- Instream temperature and flow
- Reservoir operations
- Riparian vegetation and shade
- Channel morphology and cold water refuge analysis
- Other watershed characteristics

However, no decisions have been made about how these TMDLs will be structured and the specific methods to be used to develop the TMDLs.

14. The development of TMDLs and WQMPs require public participation that includes DEQ working with a local stakeholder advisory committee (OAR340-042-0050). In addition, prior to issuance the TMDL and WQMP must be available for a minimum of a 60-day

Department of Justice
1162 Court Street NE
Salem, OR 97301-4096
(503) 947-4700 / Fax: (503) 947-4792

public comment period and then DEQ will develop a "response to comment" document before issuance of the TMDL and WQMP.

15. For each TMDL, the following tasks need to be completed in the sequence described below. Based on the sequence of tasks and the level of effort for each task, I estimate the amount of time needed to develop an individual new temperature TMDL and WQMP to be as follows:

- Task 1: Month 1 – 12: Local Stakeholder Advisory Committee (LSAC) input on source identification, data collection planning and collection of data
- Task 2: Month 13 – 15: Development of loading capacity, excess load, source identification, cumulative effects analysis, waste load and load allocations, margin of safety, reserve capacity
- Task 3: Month 13 – 30: Implementation planning with DMAs for inclusion in the WQMP (for ODA and ODF the TMDL implementation planning will be completed during this time, but entry of the info into their administrative processes will take longer)
- Task 4: Month 31 – 36: APA 60 day public comment, development of response to comment, TMDL/WQMP issuance, review and action by EPA.

16. The development of replacement temperature TMDLs will need to be sequenced because of resource limitations. For example, it is unlikely that during TMDL development simultaneous convening of multiple LSACs, evaluation of data gaps, planning and collecting of data in all the basins affected by this litigation can occur. Depending on the geographic proximity, resource availability and basin watershed complexity, the first task can be conducted in two small watersheds simultaneously, but would need to be conducted for one basin at a time, for larger basins with more complex characteristics (e.g., size, sources, hydrology, diversity in land uses, etc.). In addition, as discussed above, temperature standard revisions may be needed before the final issuance of the TMDL by DEQ and the approval of the TMDL by EPA. Therefore, the timeline estimate for reissuing temperature TMDLs to replace the temperature

Department of Justice
1162 Court Street NE
Salem, OR 97301-4096
(503) 947-4700 / Fax: (503) 947-4792

TMDLs would be twelve years, and will require significant technical and financial resources from EPA and/or funding from the Oregon Legislature for completion.

17. DEQ's current resources are not sufficient for development and reissuance of temperature TMDLs even within a 12-year time period. In order to develop and reissue the temperature TMDLs within this time period, DEQ would need to rely on significant technical and financial assistance from EPA and DEQ will need to seek and gain additional funding from the Oregon Legislature. The new staff resources needed to develop temperature TMDLs and WQMPs are:

- Basin Coordinator for local implementation planning including working with the local stakeholder advisory committee (LSAC) and conducting the public comment process prior to issuance
- Water Quality Analyst for assembling data, conducting analyses, and interpretation
- Water Quality Modeler for calibration and running scenarios using appropriate water quality models
- Water Quality Monitoring Specialist for collection of new data for analysis and modeling
- Administrative Support for document preparation and supporting the public comment process
- Additionally, Natural Resources Specialist in the Standards Program for conducting standards rulemaking work.

18. DEQ also has previous commitments in the Performance Partnership Agreement between DEQ and EPA and in the Integrated Report to resource the development of TMDLs. These TMDLs are in the Coastal Zone Management Area ("CZMA") that are part of a Coastal Zone Act Reauthorization Amendments (CZARA) settlement agreement between EPA and plaintiff NWEA. The TMDLs that DEQ is currently working on in the CZMA are the: Coquille

Department of Justice
1162 Court Street NE
Salem, OR 97301-4096
(503) 947-4700 / Fax: (503) 947-4792

River watershed for bacteria, DO, pH, and temperature; Elk Creek watershed for bacteria; Indian Ford Creek for biocriteria; Salmon River watershed for bacteria; Siletz River watershed for temperature; Upper Yaquina River watershed for bacteria and dissolved oxygen; and Yachats River watershed for temperature and bacteria. DEQ is working on TMDL development in the Powder River watershed for bacteria, dissolved oxygen, and pH. In addition, DEQ is working with EPA on TMDL development in the Willamette River watershed for mercury and in the Klamath River watershed for temperature in response to the April 11, 2017 Court Order. This work requires significant resources and time from the same people that would be developing the subject temperature TMDLs. With the exception of two basins, the CZMA coastal TMDL efforts are separate from the TMDLs at issue in this litigation, and will result in TMDLs in basins that have not previously had TMDLs.

19. As noted above, additional time will be required, either prior to or concurrently with the TMDL development, to revise the temperature standard. Revising the standard includes the following steps:

- Identifying numeric or narrative criteria that protect the designated beneficial uses and document the scientific basis for the proposed criteria;
- Developing clear and legally sufficient rule language amendments;
- Involving stakeholders through advisory committees, public meetings or other forums,
- Completing the rulemaking process according to Oregon's Administrative Procedures Act, which requires a fiscal impact analysis, public hearings, a response to public comments, and adoption of the final proposed rule by the Environmental Quality Commission, and;
- Submitting the final rule to EPA for approval.

Time for the standards revision process is built into the 12 year estimate for replacing the TMDLs, but this estimate relies on several ambitious assumptions, including that:

Department of Justice
1162 Court Street NE
Salem, OR 97301-4096
(503) 947-4700 / Fax: (503) 947-4792

- A standards revision is not required to complete an update of the Malheur TMDL,
- DEQ obtains one additional staff person in its standards program to conduct this rulemaking work,
- Once an approach for revising the temperature standard is developed, the rulemaking process for each basin or region of the state can be completed in 18 months, and
- EPA completes ESA and tribal consultations and approves the standards revisions in less than 6 months.

20. If the above assumptions are not met, but temperature standards revisions must be adopted in order to meet a court ordered TMDL replacement schedule, DEQ's priority standards work will necessarily be delayed. DEQ recently completed a Triennial Review and prioritized the water quality standards program work for the next three to five years. The priority work identified includes projects that will improve DEQ's ability to renew permits in a timely manner, update or add new criteria based on new science, or improve implementation procedures to enhance protection of beneficial uses.

V. In the interim, the temperature TMDLs should remain in place because they help protect salmonids and are important to other programs.

A. The temperature TMDLs are protective of salmonids

21. The temperature TMDLs should remain in place and continue to be implemented until replacement temperature TMDLs have been issued and approved by EPA because the allocations are designed to limit anthropogenic sources to insignificant increases in temperature and will help to protect threatened and endangered salmonids. As discussed above, the temperature TMDLs allocate the HUA of 0.3C (OAR340-041-0028(12)(b)(B)), which has been determined to be an insignificant increase in temperature and is not considered a reduction in water quality (OAR340-041-0004(3)(c)). This limits point sources and nonpoint sources to no

Department of Justice
1162 Court Street NE
Salem, OR 97301-4096
(503) 947-4700 / Fax: (503) 947-4792

more than a cumulative 0.3C increase in temperature from all anthropogenic sources covered by the temperature TMDL, which benefits the environment and sensitive species.

22. As noted above, the temperature TMDLs determined NTP, which was DEQ's estimate of the natural conditions given the assumptions made and the data and analytical methods available at the time the TMDL was developed. In some instances NTP was less than the Biologically Based Numeric Criteria ("BBNC") and in other instances, greater than the BBNC criteria. Irrespective of whether the TMDL used the NTP or the BBNC as the basis (the "applicable criteria") for the human use allowance, these TMDLs limited anthropogenic sources of heat to no more than a 0.3C increase in temperature. The implementation of the heat load allocations through NPDES permits and other implementation measures therefore will benefit threatened and endangered salmonids by providing significant reductions in anthropogenic thermal load and a reduction in stream temperatures where temperatures are affected by anthropogenic sources of heat.

23. For purposes of issuing NPDES permits during the time period while the temperature TMDLs are developed, when working on permits with a WLA in one of the current TMDLs the permit writer evaluates effluent limits to implement the TMDL WLA as well as the currently effective standard, which is the BBNC plus the pre-TMDL human use allowance. The permit writer then applies whichever is more stringent to the permit. Therefore, depending on the point source and receiving water fact set, keeping the existing TMDLs in place during TMDL development would result in more protective limits in permits where the existing WLA is more stringent than the applicable BBNC plus the pre-TMDL human use allowance.

B. The temperature TMDLs are important to other programs.

24. The temperature TMDLs have been and continue to be used by several DEQ Water Quality Subprograms, DMAs and by conservation organizations to reduce anthropogenic sources of heat in impaired waterbodies. The temperature TMDL allocations are being used to:

- Identify and fund riparian restoration (Table 3).

Department of Justice
1162 Court Street NE
Salem, OR 97301-4096
(503) 947-4700 / Fax: (503) 947-4792

- Fund proposals to Clean Water State Revolving Fund. TMDLs are used as one of the scoring criteria (OAR 340-054-0026(2)(c)).
- Evaluate Clean Water Act section 319 nonpoint source grant project proposals for riparian restoration in areas that have had temperature TMDLs issued.
- Evaluate projects as part of DEQ's Clean Water Act section 401 certification that would affect riparian areas. TMDL allocations were used as the basis to require riparian restoration for areas with temperature TMDLs.
- Assess Oregon Department of Agriculture agricultural area rules and plans during its biennial review of the rules and plans.
- Change US Army Corps of Engineers reservoir operations
- Review water rights applications/instream water rights
- Target restoration efforts of NGOs, such as watershed councils, river keeper groups, and land and water trusts to increase riparian, channel and floodplain function and restore streamflow.

Table 4. Riparian restoration to improve effective shade following issuance of a temperature TMDL that were documented in the Oregon Watershed Restoration Inventory (OWRI) version 010617 maintained by the Oregon Watershed Enhancement Board (OWEB).

TMDL	Activity	Linear Stream Miles Treated	Total Activity Cost[3]
John Day Basin	Riparian Tree Planting	19.7	$1,413,781
Grande Ronde Basin, Lower Grande Ronde	Riparian Tree Planting	13.0	$257,480
Malheur Basin	Riparian Tree Planting	0.0	$ -
Middle-Columbia/Hood Basin, Miles Creek Subbasin1	Riparian Tree Planting	2.3	$19,556
Willamette Basin, Molalla-Pudding Subbasin	Riparian Tree Planting	1.8	$93,589
Rogue Basin2	Riparian Tree Planting	30.2	$1,172,676
Umpqua Basin	Riparian Tree Planting	9.6	$346,020

Department of Justice
1162 Court Street NE
Salem, OR 97301-4096
(503) 947-4700 / Fax: (503) 947-4792

Willamette Basin	Riparian Tree Planting	156.1	$9,949,132
Umatilla Basin, Willow Creek Subbasin	Riparian Tree Planting	0.0	$ -
	TOTAL	232.7	$13,252,234

- Includes projects for the entire Middle Columbia-Hood subbasin, not just the Miles Creeks TMDL area.
- Includes projects in the Lower Rogue and Middle Rogue Subbasins.
- Total activity cost is the sum of all OWRI riparian activities that are included in riparian tree planting projects. Other riparian activities may include fencing, voluntary tree retention, or vegetation management.

C. Maintaining the temperature TMDLs is superior to regulating for years without temperature TMDLs in the affected basins.

25. Again, the allocations in the TMDLs result in permit limits and requirements for anthropogenic sources of heat that result in no more than a 0.3C increase at any point within the area covered by the TMDL. Continued implementation of these allocations will continue to reduce anthropogenic sources of heat, resulting in reduced instream temperatures to the benefit of aquatic species, particularly threatened and endangered salmonids. Thermal loads will continue to be reduced from point sources through the NPDES permitting process, and from nonpoint sources through streamside vegetation and channel improvements. If the TMDLs and their associated allocations are vacated, reduction of anthropogenic sources of heat will be more difficult because the regulatory basis upon which actions are currently occurring will no longer be applicable. The temperature TMDLs, WQMPs, and TMDL IPs provide the goal, the requirements, and voluntary actions needed to reduce anthropogenic sources of heat. The current temperature TMDLs address both point sources and nonpoint sources of heat at the watershed, subbasin, or basin level. Without these TMDLs, the requirements and incentives for DMAs to implement temperature control actions will be significantly reduced.

Department of Justice
1162 Court Street NE
Salem, OR 97301-4096
(503) 947-4700 / Fax: (503) 947-4792

26. Keeping the current WLAs for a period of time will not harm aquatic life. WLAs for point sources under the revised TMDLs are unlikely to be significantly different than the WLAs in the subject temperature TMDLs and leaving the TMDLs in place would be more protective than vacating these TMDLs. There is little difference in the amount of heat needed to increase the stream temperature 0.3° from the BBNC (i.e. 18°C) than there is to increase it from a warmer natural thermal potential temperature (for example, 22°C). In addition, the effect on stream temperature from point sources relative to natural and nonpoint sources is quite small (see 2006 Willamette TMDL Figure 4.7 – 4.10 as an example). And, for NPDES permitting, DEQ would use the more stringent of either the NCC WLA or the pre-TMDL condition contained in the temperature water quality standard (DEQ Guidance 2017). If the NCC TMDLs are vacated DEQ would issue NPDES permits written to the pre-TMDL condition (OAR340-041-0028(12)(b)(A)), which for some point sources would be significantly less restrictive than the NCC TMDL WLA depending on the fact set for the point source and the receiving stream. Leaving the NCC TMDLs in place will not adversely affect stream temperatures because reducing heat from the point sources discharges that DEQ's regulates through NPDES permits will make little difference to the instream temperature of the river in most cases in comparison to continued progress implementing the load allocations including the watershed characteristics that reduce stream warming, such as vegetative shading, flow, and channel and floodplain improvements accomplished by keeping the TMDLs in place while new TMDLs are developed. For the TMDLs where these surrogates have been allocated we expect the NCC-based TMDLs are as protective of salmonids as the BBNC-based TMDLs.

VI. DEQ is working to develop TMDLs for other basins, including the Coastal Zone Resource Area (CZRA). DEQ has limited resources for conducting all of the required work.

27. As noted above, DEQ is currently developing TMDLs in the CZMA in response to the CZARA litigation brought by NWEA against EPA and in response to EPA and NOAA's determination of gaps in Oregon's Coastal Nonpoint Control Plan for CZARA. These TMDLs

Department of Justice
1162 Court Street NE
Salem, OR 97301-4096
(503) 947-4700 / Fax: (503) 947-4792

are being developed to address impairments for temperature, dissolved oxygen, pH, biocriteria, and bacteria. These TMDLs, when completed and implemented, will reduce these pollutants and the adverse effect they have on Oregon Coastal Coho and other aquatic life as well as improve protections for public health. DEQ has been working on the MidCoast TMDL in response to CZARA since 2012 and after completion of the MidCoast, TMDLs for the South Coast will be developed, and the TMDLs for the North Coast, Umpqua, and Rogue will be redeveloped. Nearly all of DEQ's TMDL development resources are being used for the development of these TMDLs. These TMDLs will address impairments of several water quality standards and will provide allocations, plans and actions to address multiple pollutants, in addition to heat.

Allowing a schedule for TMDL replacement that does not require shifting resources from this project provides a greater benefit for overall water quality and sensitive beneficial uses such as Coastal Coho and other salmonids than shifting resources to the subject temperature TMDLs that are already being implemented and limit anthropogenic sources of heat to no more than a 0.3C increase in temperature.

VII. Summary and conclusion.

28. In summary, DEQ believes the subject temperature TMDLs provide water quality benefit and should remain in place during the development of replacement TMDLs. The allocations in the temperature TMDLs provide water quality benefit by reducing anthropogenic sources of heat and these allocations are used by several water quality subprograms at DEQ for implementing the State's Water Quality Program. The subject temperature TMDLs provide a framework for water quality restoration that are used for water quality management by local, state, and federal agencies. Finally, the temperature TMDLs are typically developed for large geographic areas and because of the complexity of the analysis and the need for more recent data to fully achieve the desired outcomes from the TMDL and its implementation, and the need to

Department of Justice
1162 Court Street NE
Salem, OR 97301-4096
(503) 947-4700 / Fax: (503) 947-4792

revise the temperature standard, development of replacement temperature TMDLs that can be approved by EPA will take at least twelve years if sufficient resources are obtained.

I declare under penalty of perjury that the foregoing is true and correct.

I declare under penalty of perjury that the foregoing is true and correct.

EXECUTED on February 15, 2018.

EUGENE P. FOSTER

Department of Justice
1162 Court Street NE
Salem, OR 97301-4096
(503) 947-4700 / Fax: (503) 947-4792